

What is claimed is:

1. A method for transmitting digital optical signals having different data rates, by means of transport signals including a uniform pulse frame with a payload, an optical channel overhead and forward error correction information, the method comprising the steps of:

forming a first optical transport signal of a first hierarchical level by inserting a tributary signal into a payload of a pulse frame such that frequency matching is effected and an optical channel overhead and forward error correction information are added;

forming a second optical transport signal of a second hierarchical level, by forming an optical unit group from four optical transport signals without the forward error correction information thereof and/or from complete tributary signals of the first hierarchical level or a tributary signal of the second hierarchical level, such that frequency matching is effected between the transport signals of the first hierarchical level and/or the tributary signals and the second transport signal, wherein an optical channel overhead is added and forward error correction coding is carried out; and

forming a third transport signal of a third hierarchical level, by forming a third optical unit group from transport signals without the overhead thereof and/or tributary signals of the first hierarchical level or from transport signals without the overhead thereof and/or tributary signals of the second hierarchical level, or by forming a tributary signal of the third hierarchical level, such that frequency matching is effected between the transport signals and/or the tributary signals and the third transport signal, wherein an optical channel overhead is formed and the forward error correction coding is carried out.

2. The method as claimed in claim 1, further comprising the step of:  
forming in the first hierarchical level a first optical unit group comprising a tributary signal of the first hierarchical level.
3. The method as claimed in claim 2, further comprising the step of:  
forming the first optical unit group comprising a tributary signal or data signals in the first hierarchical level.
4. The method as claimed in claim 3, wherein the payload of the pulse frame comprises 3808 bytes, the overhead comprises sixteen bytes and the forward error correction information comprises 256 bytes.
5. The method as claimed in claim 4, further comprising the step of:  
inserting four stuffing bytes in a manner distributed at least approximately uniformly over the payload of the pulse frame which contains in each case seven stuffing information bits and one stuffing bit for the transmission of a tributary signal in a transport signal of the first hierarchical level.
6. The method as claimed in claim 4, further comprising the step of:  
carrying out a positive stuffing method for the purpose of matching the data rates between tributary signals and the transport signal.
7. The method as claimed in claim 4, further comprising the steps of:  
interleaving transport and/or tributary signals byte-by-byte for the transmission

of a total of four transport signals or tributary signals of the first hierarchical level;

inserting a stuffing byte comprising seven stuffing information bits and one stuffing bit into each transport or tributary signal; and

effecting a match to the data rate of the transport signal by means of a positive stuffing method.

8. The method as claimed in claim 4, further comprising the steps of:

interleaving transport and/or tributary signals byte-by-byte for the transmission of a tributary signal in a transport signal of the second hierarchical level; and

effecting first matching of the data rates by adding four groups of fixed stuffing information having 39 bits in each case, such that at least four approximately equally distributed stuffing bytes are additionally inserted which each contain seven stuffing information bits and one stuffing bit, wherein a positive stuffing method is carried out for matching to the data rate of the transport signal.

9. The method as claimed in claim 4, further comprising the steps of:

interleaving transport and/or tributary signals byte-by-byte for the transmission of a total of four transport signals or four tributary signals of a second hierarchical level; and

inserting four stuffing bytes into the pulse frame, each stuffing byte containing seven stuffing information bits and one stuffing bit, wherein a positive stuffing method is carried out for matching to the data rate of the transport signal.

10. The method as claimed in claim 4, further comprising the step of:

inserting the transport and/or tributary signals into the pulse frame in a

manner such that they are interleaved with one another byte-by-byte, for the transmission of a total of sixteen transport signals or sixteen tributary signals of a first hierarchal level, in a transport signal of the third hierarchical level, such that for each transport or tributary signal, first fixed matching of the data rate is effected by means of a respective stuffing byte having four fixed stuffing bits and four information bits, wherein four each transport or tributary signal, a stuffing byte is inserted into the pulse frame, said byte containing seven stuffing information bits and one stuffing bit, in that a positive stuffing method is carried out.

11. The method as claimed in claim 4, further comprising the step of: effecting first matching of the data rates by means of fixed stuffing information of 314 bits, for the transmission of a tributary signal of the third hierarchal level in a transport signal of the third hierarchal level, in that four stuffing bytes each containing seven stuffing information bits and one stuffing bit are inserted, wherein a positive stuffing method is carried out for matching to the data rate of the transport signal.

12. The method as claimed in claim 11, further comprising the step of: effecting the frequency matching during the insertion of transport signals or tributary signals into transport signals of a higher hierarchical level in a plurality of stages.

13. The method as claimed in claim 12, further comprising the step of: effecting frequency matching by inserting fixed stuffing information.